

Serving Twice-Exceptional Preschoolers: Blending Gifted Education and Early Childhood Special Education Practices in Assessment and Program Planning

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This article addresses considerations for assessment and intervention planning in serving twice-exceptional preschool children. The authors propose blending recommended assessment practices in early childhood gifted education and early childhood special education in a comprehensive assessment process. In doing so, unique needs of twice-exceptional preschool children may be better met. Interviewing family members and other caregivers to determine strengths and needs in daily routines and observing young children in play are two practices that provide critical information about the preschool child's developmental status, family priorities, and daily life. The authors conclude that routines-based assessment (RBA) and play-based assessment (PBA) provide perspectives that standardized assessments alone cannot provide and that RBA and PBA may be especially effective in identifying and subsequently meeting the needs of twice-exceptional preschool children.

In 1923, Leta Hollingworth wrote about individuals with special abilities and deficiencies in a book entitled *Special Talents and Defects: Their Significance for Education*. Her scholarly work may have initiated the discussion about individuals who have advanced abilities in one domain and deficits in another. Until that time, the thought that a child could be advanced in one area without being advanced in all areas was not given much consideration. In her book, Hollingworth called for differentiation of instruction to accommodate these individuals and stated, “One may safely predict that we shall find a way in time so that the principle (individual differences) may be recognized and applied in all public schools” (p. xviii).

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Sixty years later, Merle B. Karnes challenged general and special educators to identify and serve young gifted children beginning in their preschool years. Dr. Karnes was one of the first educators to provide services for preschool children who were both gifted and had special needs in a project called Retrieval and Acceleration of Promising Young Handicapped and Talented at the University of Illinois (Karnes, 1983). This special population of gifted children presents complex developmental profiles and needs that require expertise in gifted, as well as early childhood special education. Failure to provide early identification and assessment of child and family needs is likely to result in less than optimal child development and undue stress on children and families (Kay, 2000; Silverman, 2000). Although there are those in gifted education who have been addressing the needs of older twice-exceptional children since the 1980s (Cash, 1999; Kay, 2000; Nielsen, 2002; Reis & McCoach, 2002), little has been done in the fields of gifted and early childhood special education to address needs of twice-exceptional preschool children.

Preschool gifted education is arguably the most neglected area in education. According to Barbour and Shaklee (1998), gifted children 0 to 8 years of age are among the most underserved children, even though early intervention has a significant effect on their continued development. This neglect is likely the case for two reasons. First, while public funding for elementary and secondary gifted programs is scant, public funding for preschool gifted programs is non-existent. Hence, to sustain a gifted program for preschool children, donors from private organizations must provide funds and/or an entity must operate a for-profit business. Second, preschool gifted students may suffer from the same myth that older gifted students do. This myth is that gifted students do not require special support services because they will flourish under any and all circumstances (Chamberlin, 2005). Experts in gifted education readily refute this claim based on evidence that early intervention makes a significant difference in a young gifted child's social and intellectual development (Silverman, 1997a; Stile, Kitano, Kelley, & LeCrone, 1993; Whitmore, 1980). Perhaps more importantly, self-esteem and atti-

tudes regarding learning and education are defined at a very early age (Roedell, 1989; Roeper, 1997).

Gifted education researchers have long recognized the need to focus attention on identification of young gifted children from all populations, including young gifted children with disabilities or developmental delays (Barbour, 1992; Karnes, 1983). Silverman (2000) reports that one sixth of the children identified as gifted at the Gifted Developmental Center in Denver, CO, have a disability. Clark (1992) estimated that at least 300,000 individuals nationwide are twice-exceptional, and Nielsen (2002) estimated that 2% to 5% of the total population of children with disabilities may be gifted.

The purpose of this article is to reassert the challenge to identify and serve twice-exceptional children during their early years. Gifted educators must collaborate with early childhood special educators to bring a blend of current recommended assessment practices from both fields for purposes of identifying and developing individualized education and intervention programming for these children and their families.

Gifted Preschool Children

Much of the early study of gifted preschool children focused on identification and development of trait/characteristic lists. For instance, Tannenbaum (1992) reported that the three most frequent indicators of giftedness in infants and toddlers appear to be early attention, memory, and advanced language development. More recently, Liu and Lien (2005) suggested that boredom with typical early childhood education activities may be a trait associated with giftedness in preschool gifted children.

M. T. Rogers (1986) determined that more than 90% of parents with gifted children described their children as having excellent memory and advanced vocabulary development. According to Silverman (1997b), the earliest signs of giftedness reported by parents of mildly, moderately, and highly gifted children were:

- unusual alertness in infancy;
- less need for sleep in infancy;

- long attention span;
- high activity level;
- smiling and recognizing caretakers early;
- marked need for attention and stimulation;
- intense reactions to noise, pain, frustration;
- advanced progression through the developmental milestones;
- extraordinary memory;
- rapidity of learning;
- early and extensive language development;
- fascination with books; and
- curiosity—asking many questions.

A composite list of characteristics and traits that are frequently observed in preschool gifted children has been included in the Appendix. This list is derived from several sources (Feldhusen & Kolhoff, 1979; Hanninen, 1979; Roeper, 1977; Whitmore, 1980; Witty, 1958), and it can be very helpful for preschool programs that are developing or adapting screening and identification procedures. The list may be adapted for use in public awareness campaigns as a means of informing parents, caregivers, and early educators of characteristics or traits of young gifted children. Characteristic or trait lists such as the one found in the Appendix may serve as an initial screening tool in identifying young children who may be gifted, because peer and teacher nomination processes used in identifying older gifted students (Oakland & Rossen, 2005) are not appropriate for children entering preschool.

As with all identification procedures in gifted education, this list should not be viewed as the final determinant of whether or not a preschool child is gifted. Instead, it should be used to supplement more comprehensive identification procedures. Data such as performance on intelligence and achievement tests and informal assessments to determine problem-solving ability, creativity, leadership capabilities, and other personal traits should be considered in identifying giftedness.

Preschool Children With Special Needs

Young children with special needs may be diagnosed with an exceptionality at birth (e.g., cerebral palsy) or identified as having a developmental delay or disorder (e.g., autism, language delay) during infancy, toddlerhood, or the preschool years. These children may lag behind their peers in one or more areas of development or be characterized by atypical or asynchronous development (Silverman, 1996). The Individuals with Disabilities Education Act (IDEA; 1990) mandates intervention services to meet the needs of preschool children with identified disabilities or developmental delays. The services include assessment, identification, and individual education planning to address special needs.

Twice-Exceptional Preschool Children

Twice-exceptional children are described as individuals who have exceptional talents in one area and special needs in another (Kay, 2000). The list of special needs that have been documented in tandem with giftedness is lengthy. For example, Barber (1996), Cash (1999), and Neihart (2000) describe students that are academically gifted and autistic. Other cases of students with academic gifts and emotional or behavioral disorders have been documented (Morrison & Omdal, 2000; Strop & Goldman, 2002). Children with learning disabilities have also been found to be gifted. For instance, Moon and Dillon (1995) described a student with exceptional verbal talent that had a math learning disability and was health impaired. Dyslexia is a common learning disability. Gifted children may be identified as both dyslexic and gifted. A less well-known learning disability among gifted children is dysgraphia, or difficulty in handwriting and written expression (Kearney, 2000). Gifted children, especially young children, may be diagnosed with attention deficit disorder (ADD) and attention deficit hyperactivity disorder (ADHD) as discussed by Baum and Olenchak (2002) and Hartnett, Nelson, and Rinn (2004). Liu and Lien (2005) provide a lengthy discussion of young children with ADHD and giftedness identified in a pediatric prac-

tice. Other exceptionalities that can occur with giftedness include visual and auditory processing anomalies and sensory integration and modulation disorders.

Uneven or asynchronous development is common among the preschool population; however, with gifted children it may often be attributed to multiple exceptionalities. This phenomenon may be more commonplace with preschool children in general than it is with older children, but this developmental profile should not be overlooked as it may be an early indicator of giftedness in a preschooler with special needs (Silverman, 1996).

Twice-exceptional preschool children may constitute a small population; however, the low incidence of this population does not diminish the importance of identifying and serving them. These children may be identified as having special needs during their preschool years and the sole focus of early education and intervention may be on addressing delays or problematic behavior. Giftedness may be overlooked and not addressed in ways critical for optimal development. Asynchronous development in twice-exceptional young children may manifest as both discrepancy between physical and intellectual development and a discrepancy between intellectual development and the ability to demonstrate that intellect. It is essential that assessment addresses strengths and needs in order to plan proper accommodations to support giftedness and special needs. When a child's abilities are accurately reflected in typical assessment activities (e.g., standardized testing), alternate forms of assessment may not be necessary. However, in instances when abilities are not accurately reflected due to asynchronous development (e.g., lack of motor or communication skills), a need for alternative forms of assessment may be necessary to allow demonstration of hidden abilities.

Issues in Identification of Twice-Exceptional Children

A central problem in identifying twice-exceptional children is the fact that to be considered twice-exceptional, a student must have two different diagnoses. Giftedness often masks disability, and the disability may depress test scores, thus making it difficult to attain

valid assessment (Silverman, 1989). Students must be identified as having a special gift and as having a special need. This identification process requires assessment practices that bring together those with expertise in gifted education, as well as early childhood special education. Looking only for giftedness or special needs may result in overlooking one or both exceptionalities.

Standardized assessments designed to identify giftedness and special needs may be utilized as one set of measures in an assessment battery. Recent research in preschool gifted education has resulted in the development of several valid formal assessment instruments. Davis (2005) found that SEEK¹, a kindergarten screening program, has high predictive validity in predicting giftedness in preschool children. Another assessment instrument with promise is the Gifted Rating Scale (Marguiles & Floyd, 2004). This assessment comes in two forms, P and S. The P is for preschool age children, ages 3–6, and the S is for school age children, ages 6–12. Gifted educators may feel particularly confident using these instruments because they are closely tied to the Wechsler intelligence tests. Another assessment that has been used to identify gifted preschool children is the Breuer-Weuffen Discrimination Test (Hotulainen & Schofield, 2003). This is an instrument designed to identify learning deficiencies in preschool children that has also been used to identify gifted children in preschool. In early childhood, special education norm-referenced assessments such as the Bayley Scales of Infant Development-III (Bayley, 2005), the Battelle Developmental Inventory-3 (Newborg, Stock, Wnek, Guidubaldi, & Svinicki, 1988), and the Mullen Scales of Early Learning (Mullen, 1995) provide comprehensive assessment in order to identify developmental delays and strengths in children from infancy to age 8.

Standardized testing as a single measure of giftedness or developmental delay is typically problematic in identifying twice-exceptional preschool children for several reasons. Young children may not demonstrate optimal levels of performance on standardized tests because it is difficult for them to comply with demands of standardized procedures in responding to test items that are presented outside of a meaningful, motivating context. For this reason, standardized testing alone, though it can yield critical norm-referenced informa-

tion, is in many ways developmentally inappropriate for preschool children and needs to be supplemented with authentic measures of ability (Bagnato & Neisworth, 1991). This is especially true in the case of twice-exceptional preschoolers because one exceptionality may mask the other in quantitative assessment.

Recommended practice guidelines in assessment for gifted and early childhood special education call for the use of multiple measures in assessment (Karnes, Shaunessy, & Bisland, 2004; National Association of Gifted Children [NAGC], 2006; Sandall, Hemmeter, Smith, & McLean, 2005). Specifically, diagnosis and identification requires both formal and informal assessment. Formal assessment includes norm-referenced measures such as those just discussed. Informally, the most important stakeholders for identifying giftedness in preschool children are parents and individuals who care for and educate these young children (Ciha, Harris, Hoffman, & Potter, 1974; McWilliam, 2005; Pletan, 1995). Therefore, for preschool children, informal assessment is especially useful for education and intervention planning. That planning needs to be family-centered, developmentally appropriate, and comprehensive.

We recommend the use of informal assessments such as a social and developmental history, parent/caregiver/teacher checklists specifying characteristics of young children with special gifts and needs, and performance samples. Histories, personal/behavioral checklists, documentation of early literacy and numeracy skills, precocious understandings of abstract concepts, and exceptional talent in visual and performing arts are items that parents, caregivers, and preschool teachers can identify and monitor (Gross, 1999; Karnes & Taylor, 1978; Lockert, 1997; Roedell, 1989; Serna, Nielsen, Mattern, & Forness, 2002; Wright & Borland, 1993). Norm-referenced evaluation, social and developmental histories, checklists, and performance samples are routinely used in gifted and early childhood special education assessments and have been discussed at length by others (McLean, Wolery, & Bailey, 2004).

Two other forms of informal assessment, routines-based assessment (McWilliam, 1992, 2005) and play-based assessment (Linder, 1993) are relatively recent practices in early childhood special education that have proven to be especially effective as comprehensive,

family-centered, and developmentally appropriate means for individualized education and intervention planning for young exceptional children and their families. These latter forms of assessment will be the focus of discussion in blending gifted and early childhood special education practices.

Routines and Play-Based Assessment

This section describes how routines-based assessment (RBA) and play-based assessment (PBA) may be used to meet current recommended practices in the fields of gifted and early childhood special education. Practices referenced in this discussion come from the National Association for Gifted Children Standards (NAGC, 2006) and the Early Childhood Special Education professional organization's recommended practices guidelines, from the Council for Exceptional Children/Division of Early Childhood (Sandall et al., 2005).

RBA and PBA are two forms of authentic assessment that are integrally linked. The RBA yields information about a child's functioning in everyday home, preschool, and community routines and serves as a comprehensive assessment of developmental status and goodness of fit between routines and the child's exceptional abilities and needs within those routines. Play occurs throughout daily routines and preschool curriculum is often play-based. PBA is especially important in understanding gifts and needs because play leads learning and development during the preschool years (Vygotsky, 1978) and is a reflection of cognitive development (Piaget, 1962).

Routines-Based Assessment

RBA has its roots in ecological assessment, a current and commonly used practice in early childhood special education. Ecological assessment has a solid history and research base that is anchored in the belief that routines or daily activities should dictate assessment and intervention planning (Bernheimer & Keogh, 1995; Bricker & Woods-Cripe, 1992; McWilliam, 1992; Thurman, 1997). The RBA

provides information about features, demands, and learning opportunities in everyday contexts. In RBA, family members/caregivers and preschool teachers are interviewed and asked to describe the child's functioning in everyday routines in the home and other child care and education settings, including the child's functioning in the preschool curriculum (McWilliam, 1992, 2005).

The interview has a semistructured format that provides descriptions of the child's engagement, independence, and social competence during daily routines. Routines include dressing, mealtimes, transitions, whole- and small-group activities in the classroom, play at home and school, and a variety of family interactions and community activities (i.e., shopping, recreation). Each routine is given a goodness of fit rating (*1-poor, 5-excellent*) by the interviewees, and problem routines are prioritized by parents with input from teachers/caregivers. Specific information about engagement, independence, and social competence guides goal setting and planning intervention. This process is ideal for assessing twice-exceptional children because it reveals routines that may be a priority (for parents, child care providers, and preschool teachers) but are also problematic, and it also clarifies contexts that support the expression of exceptional abilities.

In these interviews, those who spend time with the child describe both exceptional abilities and areas of need. At the end of the interview, parents, caregivers, and teachers prioritize routines that are problematic, and the education/intervention planning team members identify strategies for supporting children and families in everyday contexts. This comprehensive and cross-contextual information provides a view of the child's strengths (i.e., creativity, precocious academic ability, social competence), as well as needs (i.e., structure, challenge, sensory or developmental intervention, positive behavior support). Furthermore, the interviews give insight into when in daily life supports for strengths and special needs are best provided. This is useful information for designing individualized, challenging, supportive education/intervention plans that can be implemented by any and all adults the child spends time with during the day.

Finally, parent recommendations and strategies for addressing priorities are at the center of the RBA process. For example, parents

may identify difficulty with self-esteem or self-regulation as contributing to poor functioning in daily routines, and intervention planning would include strategies for supporting self-esteem and regulation in the classroom and community. With a child advanced in literacy, parents may identify the child's need for challenge in literacy activities as a priority, and all those who spend time with the child would use strategies to provide appropriate challenge. Parent priorities may include resource needs for the family, as well as enhancing quality of daily life for the child. This process is family-centered and acknowledges that parents know what is most important for their child and family and it provides the foundation for parent-professional collaboration in education/intervention.

Play-Based Assessment

Early childhood educators regard play as a reflection of cognitive development. Hence, if a child lacks the ability to respond to items measuring cognitive development in formal assessment, cognitive ability can be assessed by observing the child's highest levels of play (Fewell, 1984; McCune-Nicholich, 1981; Rogers, 1982; Rubin, Fein & Vandenbergh, 1983; Westby, 1980). Play is associated with ideational fluency, creativity, problem solving, representational ability, and higher order thinking (Athey, 1984; Dansky & Silverman, 1973; Feitelson & Ross, 1973; Vygotsky, 1978; Westby, 1980) and is often used to assess ability in these areas. Linder's (1993) book, *Transdisciplinary Play-Based Assessment: A Functional Approach to Working With Young Children*, popularized PBA.

Because all developmental domains converge in play, PBA also provides information about a child's functioning in other areas, such as language, sensorimotor functioning, self-regulation, social competence, as well as academic skills including literacy and numeracy. Assessment in play is a developmentally appropriate activity for preschool children, and, if provided the proper materials and challenges in play, children are likely to demonstrate their highest levels of ability. For example, cooperative, multischeme dramatic play with peers is a peak achievement during the preschool years, and children use imagination and sophisticated language, problem-solving, and social

skills in that play. Play also presents a context for direct instruction within a meaningful context so the ability to acquire new information and generalize newly learned skills can be assessed. This form of assessment can be used to identify areas of giftedness, as well as ways to support development in areas of special need.

PBA provides information on the ability to represent higher order thinking (Kearney, 2001; Morelock, Brown, & Morrissey, 2003; Wright, 1993). In play, children confront problems, create goals, develop theories, and test strategies for solving problems (Hertzog, Klein, & Katz, 1999). They are challenged to represent their emergent understandings in a variety of ways. For instance, they act out play scenarios with peers, they draw and produce physical representations, and they tell stories.

Play is a mainstay in the culture of childhood, and it is a key context for inclusion. Exceptional children are likely to demonstrate atypical play and/or have difficulty relating to and joining the play of peers (Buchanan & Cooney, 2000; Guralnick & Neville, 1997). Play is the first opportunity for children to develop affective and social competence. It is estimated that 75% of young children with special needs lack social competence, particularly with peers (Guralnick & Neville, 1997; Odom, McConnell, & Chandler, 1990). PBA can assist in supporting affective development and social competence in the early years.

In addition, PBA information can be directly translated into individualized planning to properly challenge and support twice-exceptional children in play settings at home, in the community, and in the preschool classroom. In this way, PBA is compatible with and builds upon RBA in education/intervention planning.

Discussion: Bringing Two Fields Together to Meet Unique Needs

NAGC (2006) has created standards that address assessment and program planning for twice-exceptional learners. Gifted educators are advised to use a variety of assessment instruments and identify students who break stereotypes of gifted students (NAGC, 2006).

The NAGC standards pertaining to assessment emphasize assessing diverse abilities, talents, strengths, and weaknesses in order to provide students an opportunity to demonstrate strengths and needs.

Early childhood special educators share similar concerns: the appropriate assessment of young children, the need for parent and professional partnerships, and education/intervention planning that supports development and quality of life for children and families in all daily contexts. The Council for Exceptional Children/Division of Early Childhood Recommended Practices guidelines address these concerns: "Early childhood assessment is a flexible, collaborative decision-making process in which teams of parents and professionals repeatedly revise their judgments and reach consensus about the changing developmental, educational, medical, and mental health service needs of young children and families" (Bagnato & Neisworth, 1991, p. xi).

The Division of Early Childhood (DEC) Recommended Practices emphasize family and professional collaboration in planning and implementing assessment to better ensure that assessment provides useful information for supporting children and families (Sandall et al., 2005). In planning intervention, providing environments, materials, and instructional strategies to promote engagement, learning, and group membership across daily contexts is considered to be essential.

Assessment practices from gifted education and early childhood special education discussed in this paper merge and complement each other in meeting needs of twice-exceptional preschool children. Assessment batteries that consist of formal and informal measures from multiple sources increase the validity of assessment and give a holistic view of child ability, performance, and child and family needs. Two practices, RBA and PBA, were presented as being especially appropriate forms of assessment for young, twice-exceptional children and their families.

Children demonstrate diverse abilities and needs across everyday contexts. Focusing on performance in daily contexts increases the likelihood that abilities and needs will be identified. For preschool children, preschool settings, daycare, and homecare are central contexts for learning. Thus, assessment must include perspectives

on demands and opportunities for learning in those contexts. The RBA provides authentic assessment information about the child's functioning in a variety of contexts throughout the day and leads to understanding of how gifts and needs can be supported.

RBA is family-centered and culturally sensitive in that it takes into account diverse abilities, talents, strengths, and needs that are immediately useful in planning appropriate interventions that are compatible with family and community values and activities. This ecological assessment is based on ecological theory (Bronfenbrenner, 1977, 1979, 1992) and family systems theory (Steinglass, 1984) and has a deep research base (Thurman, 1997). Most importantly, interventions take place during ongoing daily routines in or out of the home and are appropriate for families, other caregivers, and preschool teachers because they are not intrusive and do not require that families and others radically change daily routines to implement interventions. Differentiated instruction and interventions may be facilitated within existing daily routines, thereby increasing the chances that they will be implemented.

PBA is age appropriate and allows for expression of thought and creative ability in many ways and may be the best measure of cognitive ability in young children. Play may be useful in identifying young, twice-exceptional children who lack the prior experiences to perform to their ability on norm-referenced tests. Most preschool curriculum is play or project-based, so understanding how a child plays will help to plan interventions to support the child's learning and group membership within the general education curriculum. Play may also provide an early context for supporting affective development in gifted children with special needs.

Proposed identification procedures and program planning activities described in this paper are research based and represent recommended practice for serving young children with developmental delays and disabilities. The authors submit that these practices may be uniquely effective for serving young, gifted, twice-exceptional children, as well. The commitment to identifying twice-exceptional preschool children and the blending of assessment procedures from two fields presents an exciting opportunity for gifted and early child-

hood special educators to rise to the challenge to meet the needs of these underserved children.

References

- Athey, I. (1984). Contributions of play to development. In T. D. Yawkey & A. D. Pellegrini (Eds.), *Child's play: Developmental and applied* (pp. 9–28). Hillsdale, NJ: Lawrence Erlbaum.
- Bagnato, S. J., & Neisworth, J. T. (1991). *Assessment for early intervention: Best practices for professionals*. New York: The Guilford Press.
- Barber, C. (1996). The integration of a very able pupil with Asperger Syndrome into a mainstream school. *British Journal of Special Education*, 23, 19–24.
- Barbour, N. B. (1992). Early childhood gifted education: A collaborative perspective. *Journal for the Education of the Gifted*, 15, 145–162.
- Barbour, N. E., & Shaklee, B. D. (1998). Gifted education meets Reggio Emilia: Visions for curriculum in gifted education for young children. *Gifted Child Quarterly*, 42, 228–237.
- Baum, S. M., & Olenchak, F. R. (2002). The alphabet children: GT, ADHD, and more. *Exceptionality*, 10, 77–91.
- Bayley, N. (2005). *Bayley Scales of Infant Development—III*. San Antonio, TX: Psychological Corps.
- Bernheimer, L. P., & Keogh, B. K. (1995). Weaving interventions into the fabric of everyday life: An approach to family assessment. *Topics in Early Childhood Special Education*, 15, 415–433.
- Bricker, D., & Woods-Cripe, J. (1992). *An activity-based approach to early intervention*. Baltimore: Paul H. Brookes.
- Bronfenbrenner, U. (1977). Toward an experimental ecology of human development. *American Psychologist*, 32, 513–531.
- Bronfenbrenner, U. (1979). *The ecology of human development: Experiments by nature and design*. Cambridge, MA: Harvard University Press.
- Bronfenbrenner, U. (1992). *Ecological systems theory*. London: Jessica Kingsley.

- Buchanan, M. L., & Cooney, M. (2000). Play at home, play in the classroom: Family/professional partnerships in supporting child play. *Young Exceptional Children*, 3, 9–15.
- Cash, A. B. (1999). A profile of gifted individuals with autism: The twice exceptional learner. *Roeper Review*, 22, 22–27.
- Chamberlin, S. A. (2005). Secondary mathematics for high-ability students. In F. Dixon & S. Moon (Eds.), *The handbook of secondary gifted education* (pp. 145–163). Waco, TX: Prufrock Press.
- Ciha, T. E., Harris, T. E., Hoffman, C., & Potter, M. W. (1974). Parents as identifiers of giftedness, ignored but accurate. *Gifted Child Quarterly*, 18, 191–195.
- Clark, B. (1992). *Growing up gifted: Developing the potential of children at home and at school*. (4th ed.). New York: Merrill.
- Dansky, J. L., & Silverman, I. W. (1973). Effects of play on associative fluency in pre-school age children. *Developmental Psychology*, 9, 38–43.
- Davis, S. L. R. (2005). Predicting exceptionality, student achievement, and ISTEP scores using pre-school screening scores of Amish and English children. *Dissertation Abstracts International Section A: Humanities and Social Sciences*, 65(11-A), 4101 (AAI3152548).
- Feitelson, D., & Ross, G. S. (1973). The neglected factor-play. *Human Development*, 16, 202–223.
- Feldhusen, J. F., & Kolhoff, M. B. (1979). Giftedness: A mixed blessing for the preschool child. In S. Long & B. Batchelor (Eds.), *When there is crisis: Helping children cope with change* (pp. 81–90). Terre Haute, IN: Indiana Association for the Education of Your Children.
- Fewell, R. R. (1984). *Play assessment scale* (4th ed.). Unpublished manuscript, University of Washington at Seattle.
- Gross, M. U. M. (1999). Small poppies: Highly gifted children in the early years. *Roeper Review*, 21, 207–214.
- Guralnick, M. J., & Neville, B. (1997). Designing early intervention programs to promote children's social competence. In M. J. Guralnick (Ed.), *The effectiveness of early intervention* (pp. 579–610). Baltimore: Brookes Publishing.

- Hanninen, G. (1979). Developing a preschool gifted/talented program. *Gifted Child Today*, 9, 18–19, 21.
- Hartnett, D. N., Nelson, J. M., & Rinn, A. N. (2004). Gifted or ADHD? The possibilities of misdiagnosis. *Roeper Review*, 26, 73.
- Hertzog, N. B., Klein, M. M., & Katz, L. G. (1999). Hypothesizing and theorizing: Challenge in early childhood curriculum. *Gifted and Talented International*, 14, 38–49.
- Hollingworth, L. (1923). *Special talents and defects: Their significance for education*. New York: Macmillan.
- Hotulainen, R. H. E., & Schofield, N. J. (2003). Identified preschool potential giftedness and its relation to academic achievement and self-concept at the end of Finnish comprehensive school. *High Ability Studies*, 14, 55–70.
- Individuals with Disabilities Education Act, 20 U.S.C. §1401 et seq. (1990).
- Karnes, F. A., Shaunessy, E., & Bisland, A. (2004). Gifted students with disabilities: Are we finding them? *Gifted Child Today*, 27, 16–21.
- Karnes, M. B., & Taylor, A. R. (1978). *Pre-school talent assessment guide*. Urbana, IL: University of Illinois, Institute for Child Behavior and Development.
- Karnes, M. B. (1983). Creativity and play. In M. B. Karnes (Ed.), *The underserved: Our young gifted children* (pp. 144–157). Reston, VA: The Council for Exceptional Children.
- Kay, K. (Ed.). (2000). *Uniquely gifted: Identifying and meeting the needs of the twice exceptional student*. Gilsum, NH: Avocus Publishing.
- Kearney, K. (2000). Dysgraphia: Hiding in plain sight. In K. Kay (Ed.), *Uniquely gifted: Identifying and meeting the needs of the twice exceptional student* (pp. 37–55). Gilsum, NH: Avocus Publishing.
- Kearney, K. (2001). *Frequently asked questions about extreme intelligence in very young children*. Reno, NV: Davidson Institute for Talent Development.
- Linder, T. (1993). *Transdisciplinary play-based assessment: A functional approach to working with young children*. Baltimore: Paul H. Brookes.

- Liu, Y. H., & Lien, J. (2005). Discovering gifted children in pediatric practice. *Journal of Developmental and Behavioral Pediatrics, 26*, 366–369.
- Lockert, J. (1997). Identifying gifted preschoolers: Appropriate practices. *Agate, 11*, 12–20.
- Marguiles, A. S., & Floyd, R. G. (2004). Test review: Review of the gifted rating scales. *Journal of Psychoeducational Assessment, 22*, 175–180.
- McCune-Nicholich, L. (1981). Toward symbolic functioning: Structure of early pretend games and potential parallels with language. *Child Development, 52*, 785–797.
- McLean, M. E., Wolery, M., & Bailey, D. B. (2004). *Assessing infants and preschoolers with special needs* (3rd ed.). Upper Saddle River, NJ: Pearson Prentice Hall.
- McWilliam, R. A. (1992). *Family-centered intervention planning: A routines-based approach*. Tucson, AZ: Communication Skill Builders.
- McWilliam, R. A. (2005). Assessing the resource needs of families in the context of early intervention. In M. J. Guralnick (Ed.), *A developmental systems approach to early intervention: National and international perspectives* (pp. 215–234). Baltimore: Paul H. Brookes.
- Moon, S., & Dillon, D. R. (1995). Multiple exceptionalities: A case study. *Journal for the Education of the Gifted, 18*, 111–130.
- Morelock, M. J., Brown, P., & Morrissey, A. M. (2003). Pretend play and maternal scaffolding: Comparisons of toddlers with advanced development, typical development, and hearing impairment. *Roeper Review, 26*, 41–51.
- Morrison, W. F., & Omdal, S. N. (2000). The twice exceptional student. *Reclaiming Children and Youth, 9*, 103–106.
- Mullen, E. M. (1995). *Mullen Scales of Early Learning*. Circle Pines, MN: American Guidance Services.
- National Association for Gifted Children. (2006). *NAGC standards*. Retrieved May 12, 2006, from http://www.nagc.org/uploaded-Files/PDF/Standards_PDFs/k12 GT standards brochure.pdf
- Neihart, M. (2000). Gifted children with Asperger's Syndrome. *Gifted Child Quarterly, 44*, 222–230.

- Nielsen, M. E. (2002). Gifted students with learning disabilities: Recommendations for identification and programming. *Exceptionality, 10*, 93–111.
- Newborg, J., Stock, J. R., Wnek, L., Guidubaldi, J., & Svinicki, J. (1988). *Battelle Developmental Inventory*. Itasca, IL: Riverside.
- Oakland, T., & Rossen, E. (2005). A 21st-century model for identifying students for gifted and talented programs in light of national conditions: An emphasis on race and ethnicity. *Gifted Child Today, 28*, 56–63.
- Odom, S. L., McConnell, S. R., & Chandler, L. K. (1990). Ecobehavioral analysis of early education/specialized classroom settings and peer social interaction. *Education and Treatment of Children, 13*, 316–330.
- Piaget, J. (1962). *Play, dreams and imitation in childhood*. New York: Norton.
- Pletan, M. (1995). Parents observations about kindergartners who are advanced in mathematical reasoning. *Journal for the Education of the Gifted, 19*, 30–44.
- Reis, S. M., & McCoach, D. B. (2002). Underachievement in gifted and talented students with special needs. *Exceptionality, 10*, 113–125.
- Roedell, W. C. (1989). Early development of gifted children. In J. VanTassel-Baska & P. Olszewski-Kubilius (Eds.), *Patterns of influence on gifted learners* (pp. 13–28). New York: Teachers College Press.
- Roeper, A. (1977). The young gifted child. *Gifted Child Quarterly, 21*, 368–396.
- Roeper, A. (1997). Listen to the gifted child. *Roeper Review, 19*, 166–167.
- Rogers, K. B. (1982). Cognitive characteristics of handicapped children's play. In R. Plez (Ed.), *Developmental and clinical aspects of young children's play* (Series Paper, No. 17). Monmouth, OR: Westar.
- Rogers, M. T. (1986). *A comparative study of developmental traits of gifted and average youngsters*. Unpublished doctoral dissertation, University of Denver, Denver, CO.

- Rubin, K. H., Fein, G., & Vandenberg, B. (1983). Play. In P. H. Mussen & E. M. Hetherington (Eds.), *Handbook of child psychology: Socialization, personality and social development* (4th ed., pp. 693–774). Hoboken, NJ: John Wiley & Sons.
- Sandall, S., Hemmeter, M. L., Smith, B. J., & McLean, M. E. (2005). *DEC recommended practices: A comprehensive guide for practical application in early intervention/early childhood special education*. Longmont, CO: Sopris West.
- Serna, L., Nielsen, E., Mattern, N., & Forness, S. R. (2002). Use of different measures to identify preschoolers at risk for emotional or behavioral disorders: Impact on gender and ethnicity. *Education and Treatment of Children*, 25, 415–437.
- Silverman, L. K. (1989). Invisible gifts, invisible handicaps. *Roeper Review*, 12, 37–42.
- Silverman, L. K. (1996, October). *Serving asynchronous children using the Columbus Group approach*. Paper presented at Ohio Association for Gifted Children Annual Conference, Columbus, OH.
- Silverman, L. K. (1997a). The construct of asynchronous development. *Peabody Journal of Education*, 72, 36–58.
- Silverman, L. K. (1997b). Family counseling with the gifted. In N. Colangelo & G. A. Davis (Eds.), *Handbook of gifted education* (2nd ed., pp. 382–397). Boston: Allyn & Bacon.
- Silverman, L. K. (2000). The two-edged sword of compensation: How the gifted cope with learning disabilities. In K. Kay (Ed.), *Uniquely gifted: Identifying and meeting the needs of twice exceptional student* (pp. 153–165). Gilsum, NH: Avocus Publishing.
- Steinglass, P. (1984). Family systems theory and therapy: A clinical application of general systems theory. *Psychiatric Annals*, 14, 582–586.
- Stile, S. W., Kitano, M., Kelley, P., & LeCrone, J. (1993). Early intervention with gifted children: A national survey. *Journal of Early Intervention*, 17, 30–35.
- Strop, J., & Goldman, D. (2002). The affective side: Emotional issues of twice exceptional students. *Understanding Our Gifted*, 14, 28–29.

- Tannenbaum, A. J. (1992). Early signs of giftedness: Research and commentary. In P. S. Klein & A. J. Tannenbaum (Eds.), *To be young and gifted* (pp. 3–32). Norwood, NJ: Ablex.
- Thurman, S. K. (1997). Systems, ecologies, and the context of early intervention. In S. K. Thurman, J. R. Cornwell, & S. R. Gottwald (Eds.), *Contexts of early intervention: Systems and settings* (pp. 3–17). Baltimore: Paul H. Brookes.
- Vygotsky, L. S. (1978). The role of play in development. In M. Cole, V. John-Steiner, S. Scribner & E. Souberman (Eds.), *Mind in society: The development of higher psychological processes* (92–104). Cambridge, MA: Harvard University Press.
- Westby, C. E. (1980). Assessment of cognitive and language abilities through play. *Language, Speech, and Hearing Services in Schools*, 11, 154–168.
- Whitmore, J. R. (1980). *Giftedness, conflict and underachievement*. Boston: Allyn & Bacon.
- Witty, P. A. (1958). Who are the gifted? In N. B. Henry (Ed.), *Education for the gifted: The fifty-seventh yearbook of the National Society for the Study of Education, Part II* (pp. 41–63). Chicago: University of Chicago Press.
- Wright, L. (1993). Preschools for the gifted: What to look for. *Understanding Our Gifted*, 5, 10–13.
- Wright, L., & Borland, J. H. (1993). Using early childhood developmental portfolios in the identification and education of young, economically disadvantaged, potentially gifted students. *Roeper Review*, 15, 205–210.

Appendix

Characteristics and Traits of a Gifted Preschooler*

Language and Learning

- talks and reads early and has a large vocabulary
- demonstrates advanced language proficiency
- enjoys self-expression, especially in discussion
- has unique learning style
- has greater than average attention span

- asks many questions
- exhibits advanced observational skills and retains information about what is observed or read
- is challenged by problems and chooses sophisticated activities, such as chess or collecting, as early as age 5 and shows interest in many kinds of books, atlases, and encyclopedias
- is interested in calendars, clocks, and puzzles
- is proficient in drawing, music, or other arts

Psychomotor Development and Motivation

- walks early and displays early or advanced fine motor control in writing, coloring, and building things
- loves projects that require inquiry
- is driven to explore things, is curious, asks “why”
- wants to master the environment
- enjoys learning
- is extremely active and goal oriented
- has wide-ranging, consuming interests

Personal-Social Characteristics

- spends less time sleeping
- is more dependent on adults for communication
- interacts with adults more effectively than with children and struggles with adult inconsistency
- is sensitive to dishonesty and insincerity in adults
- demonstrates awareness of issues, such as death, war, and world hunger

*A child need not have all of these characteristics to be identified as gifted. The existence of multiple traits in a child, however, may warrant additional scrutiny.

End Note

- 1 SEEK is not an acronym for an assessment. It is the name of the screening, and it comes from the poem that was written by the per-

son that developed the screening: “Seek together, 5 years or more, I’ve been in the hands of my family and friends and now . . . Westview Schools here I come—will you help me SEEK the most that I can be?” (Davis, 2005, p. 4101).